

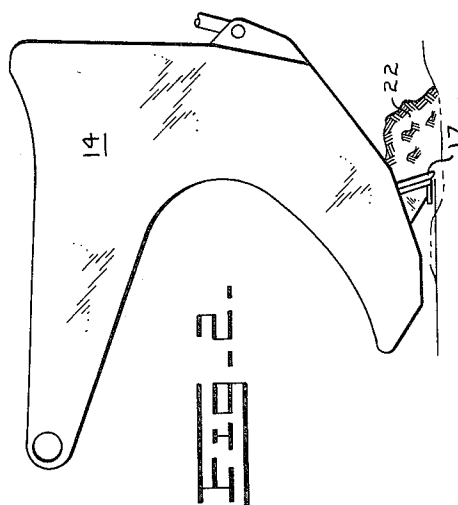
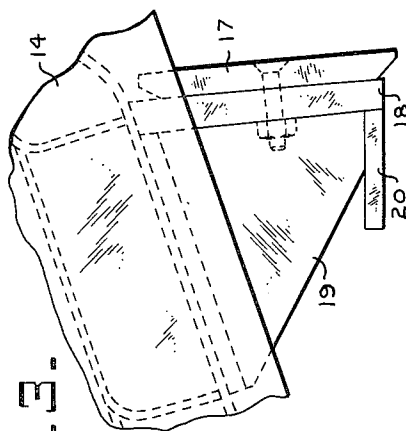
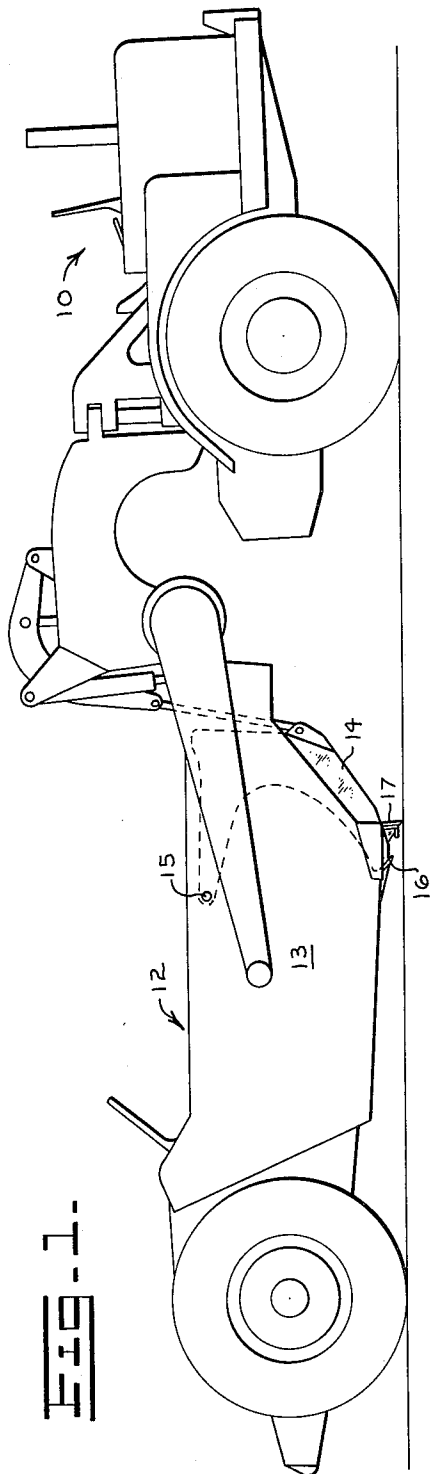
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ROAD MAINTAINING ATTACHMENT FOR EARTH-MOVING SCRAPERS

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ROAD MAINTAINING ATTACHMENT FOR
EARTH-MOVING SCRAPERS

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1 Claim. (Cl. 37—117.5)

This invention relates to a road maintaining or grading attachment for an earth-moving scraper and particularly to the combination with a scraper of a blade carried thereby in a manner to enable its use for grading or leveling a haul road during the return portion of the earth-moving cycle.

In conventional earth-moving operations, a scraper or a fleet of scrapers operate between a borrow pit and a fill area on what is commonly referred to as a haul road. In moving earth between the pit and the fill area, it is desirable that the haul road be maintained in a relatively smooth condition in order that the scrapers may operate at efficient speeds and to minimize the cyclic fatigue loads imposed on the components of the tractor and scraper by bounce. Motor graders are frequently employed for this road maintenance work and in view of the high speed operation of the scrapers, the graders must often be moved from the road to enable the scrapers to pass. Consequently it is difficult to maintain a smooth haul road when traffic is heavy. It is undesirable to use the cutting edge of the scraper for this maintenance work because the angle of the cutting edge is such that it tends to dig in upon contact with the ground. This is hazardous because with the vehicle operating at high speed, there is danger of the operator being thrown from his seat. Furthermore, most scraper cutting edges are now provided with an offset center section extending below the rest of the blade and usually referred to as a stinger bit. This scraper blade configuration prevents the use of the blade for grading a road surface.

It is, therefore, the object of the present invention to provide properly positioned and efficient means in combination with a scraper to perform light grading of haul roads particularly during the return portion of the earth-moving cycle.

Further and more specific objects and advantages of the invention are made apparent in the following specification by reference to the accompanying drawing.

In the drawing:

FIG. 1 is a view inside elevation of a tractor-scraper combination embodying the present invention;

FIG. 2 is a view in side elevation of the apron of the scraper shown in FIG. 1; and

FIG. 3 is an enlarged fragmentary view of the earth-grading attachment of the present invention carried by the apron.

A two-wheel tractor, generally indicated at 10 in FIG. 1, is shown as drawing a scraper 12. The construction of the scraper is well known and includes an earth-moving bowl 13, the forward end of which is closed by an apron 14 pivoted to the bowl as at 15. The apron is shown in its lower or closed position in FIG. 1 and may be opened or raised with respect to the forward end of the bowl either by cables or hydraulic means, many forms of which are well known. When the bowl is to be filled, the apron is raised and the bowl is lowered until a cutting edge 16 at the forward lower edge thereof penetrates the earth and directs earth upwardly into the bowl upon forward movement of the scraper.

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The present invention comprises a blade 17 disposed transversely of the apron 14 and extending thereacross in a position for engagement with the surface of the earth when the apron is closed and the bowl is raised to a position where its cutting edge 16 is out of contact with the earth. The blade 17 is bolted or otherwise secured to a supporting plate 18, best shown in FIG. 3 which is braced with respect to the bowl by means of brackets, one of which is shown at 19. A horizontally disposed plate 20 extends rearwardly from the lower edge of the plate 18 and acts as a shoe or skid plate which limits penetration of the blade 17 into the earth.

With the arrangement above disclosed when the contents of the scraper bowl have been ejected at the fill area and the scraper is to be moved back toward the borrow pit on the haul road, the apron 16 is moved to its closed position and the bowl is lowered until the blade 17 lightly engages the surface of the road. In this manner, light grading of the haul road is effected by the blade 17 as the scraper returns to the borrow pit. During this operation, the high spots of the road are scraped off and soil collecting in front of the blade 17, as indicated at 22 in FIG. 2, is deposited in low spots in the road. Thus a road having an irregular surface contour, as indicated by the broken line in FIG. 2, is smoothed by the operation described. As the scraper enters the borrow pit to begin the loading cycle, the apron 14 is again raised to a partially open position, which is characteristic for picking up a load, and this raises the grader blade 17 to a position where it is out of contact with the earth and will not interfere with a normal loading and carrying operation. The blade 17, shown in the drawing as flat, may be curved or concave on its forward surface in the manner of the moldboard of a bulldozer to impart a rolling action to the loose earth moved by it.

I claim:

In combination with a wheel supported earth-moving scraper having a bowl with an open front and an apron for closing the open front all disposed between front and rear ground engaging wheels, said apron being pivotally supported with respect to the sides of the bowl for swinging movement between a raised open position and a lowered closed position in which a portion of the apron is disposed under the forward portion of the bowl with a part above and substantially parallel to the surface of the earth, a blade secured to and extending transversely of said part of the apron throughout its width in a position for engagement with the earth when the apron is closed.

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